



I-78 Corridor Transit Study



FINAL REPORT Executive Summary



North Jersey Transportation
Authority, Inc.

Dewberry, Inc.
Urbitran Associates, Inc.



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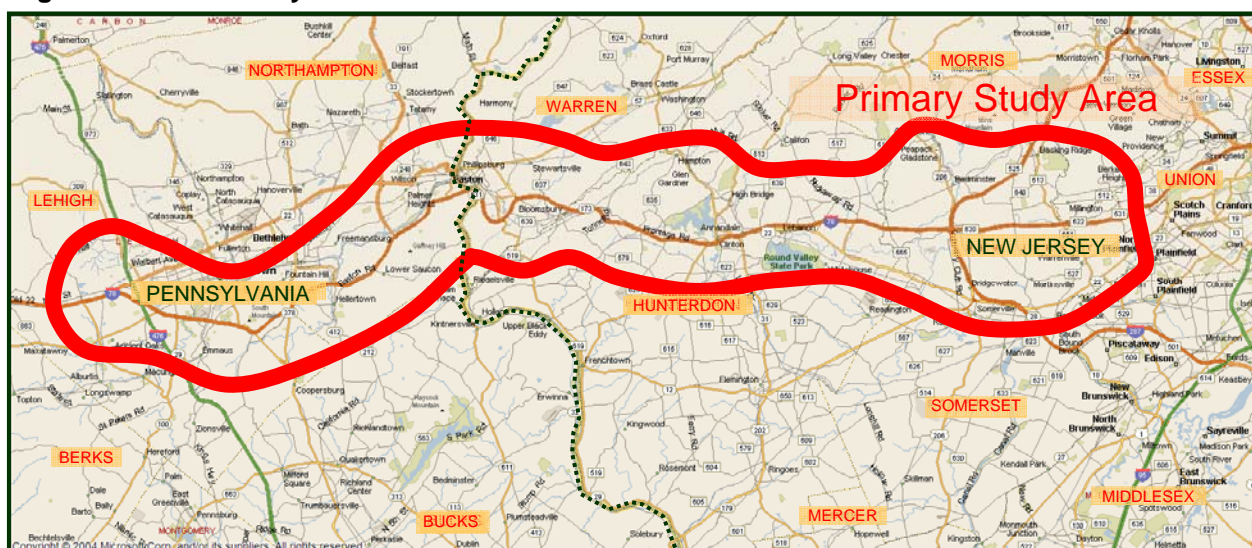
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**SECTION ES
EXECUTIVE SUMMARY**

ES.1 INTRODUCTION

The North Jersey Transportation Planning Authority, Inc. (NJTPA), in conjunction with the New Jersey Department of Transportation (NJDOT), New Jersey Transit (NJT) and the Lehigh Valley Planning Commission (LVPC) initiated the I-78 corridor Transit Study to assess the feasibility of various transit strategies to help address increasing traffic volumes and congestion in the corridor. The segment of the corridor on which the Study focuses is between Lehigh County, Pennsylvania to the west and Somerset County, New Jersey to the east (see Figure ES-1).

Figure ES-1: I-78 Study Corridor



The Study evaluated current transit services and facilities and assessed such potential future strategies as improved bus and rail service, preferential bus treatments on highways and arterials, and new and expanded park-and-ride facilities and transit hubs. The goal was to determine what transit strategies are needed to support sustainable growth in the corridor and region. The Study Team also made an initial assessment of a possible extension of the NJ TRANSIT Raritan Valley Line between High Bridge and Phillipsburg, New Jersey, with the results of these efforts to be used by NJ TRANSIT in its more detailed study (which started in Fall 2007) of the feasibility of possible extensions of rail passenger service into western New Jersey.

The various study activities culminated in a series of recommendations, falling into five areas:

- **Transit Improvements:** New services, and enhancements to existing ones;



I-78 CORRIDOR TRANSIT STUDY
Section ES: Executive Summary



I-78 Eastbound at Milepost 16
(Exit 16, CR-513 and NJ Route 172, Pittstown Road) Nov 9, 2005, 7:59am



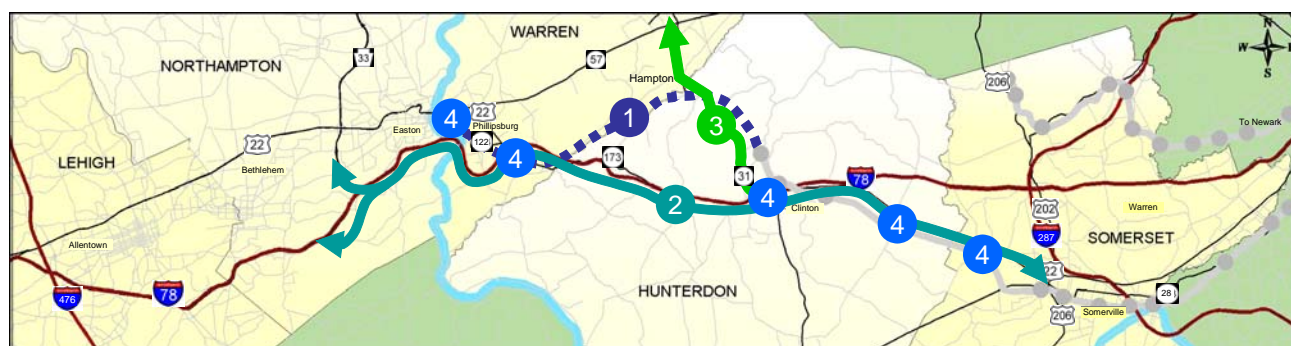
- **Transit-Ready Corridor Improvements:** Small-scale transit operations and infrastructure improvements to help provide transit with a competitive edge over other modes of travel;
- **Transit Hubs and Park-and-Ride Improvements:** Facilities that are conveniently and strategically located to allow commuters to access transit and carpool travel modes, and are designed with sufficient capacity to meet future needs;
- **Land Use and Travel Demand Management Strategies:** Public and private sector actions to support more sustainable, transit-oriented land use and site planning decisions and reduce travel demand; and
- **Highway Improvements:** Relatively low-cost options that wherever possible support the need for more efficient transit operations.

Implementation of these improvements will potentially require involvement by many public agencies working in the corridor: New Jersey Department of Transportation (NJDOT); NJ TRANSIT; Delaware River Joint Toll Bridge Commission (DRJTBC); Pennsylvania Department of Transportation (PennDOT); Lehigh and Northampton Transportation Authority (LANTA); the county governments of Somerset, Hunterdon, and Warren Counties in New Jersey, and Lehigh and Northampton County in Pennsylvania; various municipalities; Transportation Management Associations (TMAs); and private bus operators.

ES.2 RECOMMENDED TRANSIT IMPROVEMENTS

The core of the recommended plan is a series of improvements to and expansions of the public transit systems serving the I-78 corridor. These include public and private bus line-haul operations, potential passenger rail services, and shuttle bus services, and are illustrated in Figure ES-1.

Figure ES-2: Recommended Transit Improvements



- | | |
|--|--|
| <p>1 Passenger Rail Service Extension</p> <ul style="list-style-type: none"> - NJ Transit is beginning the next phase of study to investigate the feasibility of extending passenger rail service to Phillipsburg, and possibly into Pennsylvania | <p>3 Express Bus Service in the NJ Route 31 Corridor</p> <ul style="list-style-type: none"> - Originate at future Park-and-Rides in the NJ Route 31 Corridor - Follow NJ Route 31, I-78, and US Route 22 to the eastern Hunterdon and Central Somerset employment centers |
| <p>2 Express Bus in the I-78 & US Route 22 Corridor</p> <ul style="list-style-type: none"> - Originate at the PA Route 33 and PA Route 412 Park-and-Rides in Northampton County - Follow I-78 and US Route 22 to the eastern Hunterdon and Central Somerset employment centers - Stop at major Park-and-Rides in Warren and Hunterdon Counties | <p>4 Shuttle Bus Service at Key Rail Stations and Activity Centers</p> <ul style="list-style-type: none"> - Phillipsburg - Alpha, Pohatcong, and Greenwich - Clinton, Annandale, Union Township - Readington and White House Station - Branchburg and North Branch |



ES.2.1 Passenger Rail Service Extension

A core action that has been discussed for the I-78 corridor is the extension of passenger rail service on NJ TRANSIT's Raritan Valley Line, from its present terminus at High Bridge to Phillipsburg, and possibly beyond into Pennsylvania. It is not the purpose of this study to evaluate the feasibility or effectiveness of extending rail service; instead, NJ TRANSIT is preparing to do so in a Phase 2 study that would examine in greater detail bus and rail options and alternatives in Central New Jersey. This Phase 1 study has been undertaken to identify initial transit enhancement and park-and-ride expansion opportunities in the I-78 corridor, and those findings will feed into the Phase 2 study in which a broader range of rail improvement options will be investigated.

As transit needs and improvement opportunities were reviewed in this I-78 Corridor Transit study, however, it was determined that over the long term bus, rail and park-and-ride improvement actions must be coordinated. One of the most obvious means of extending rail service to Phillipsburg would be to follow the existing right of way on which Raritan Valley Line passenger service was operated until the 1980's. Therefore it was concluded that bus and park-and-ride improvements should be sited at those locations where the rail line is in proximity to, or crosses, major state highways including I-78, NJ Route 31, US Route 22, and NJ Route 173.

ES.2.2 Express Bus in the I-78 and US Route 22 Corridor

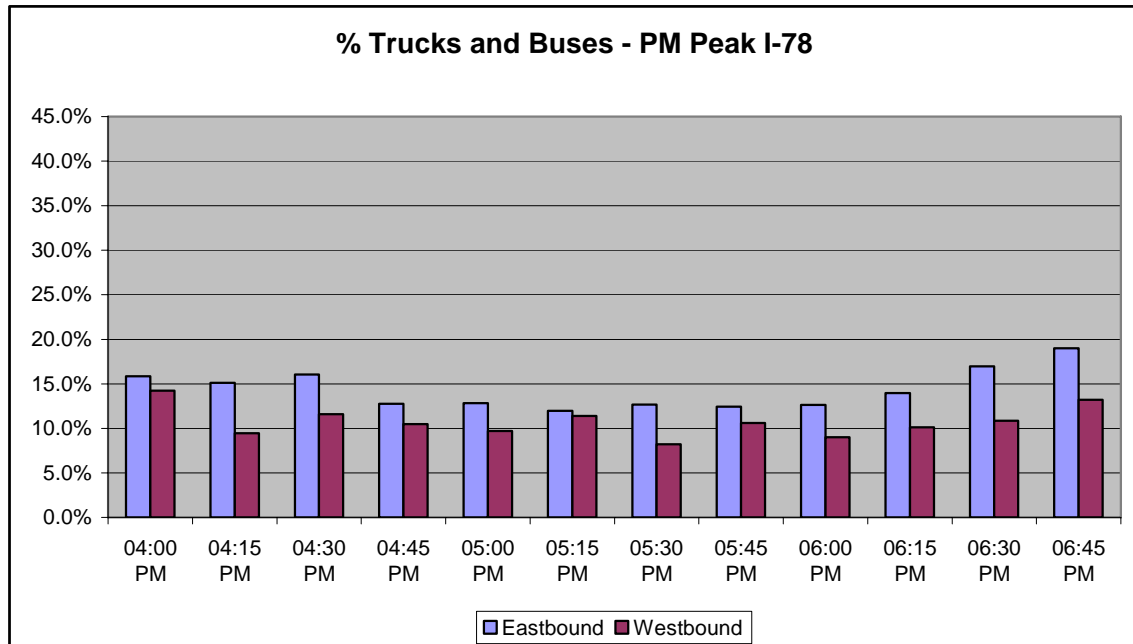
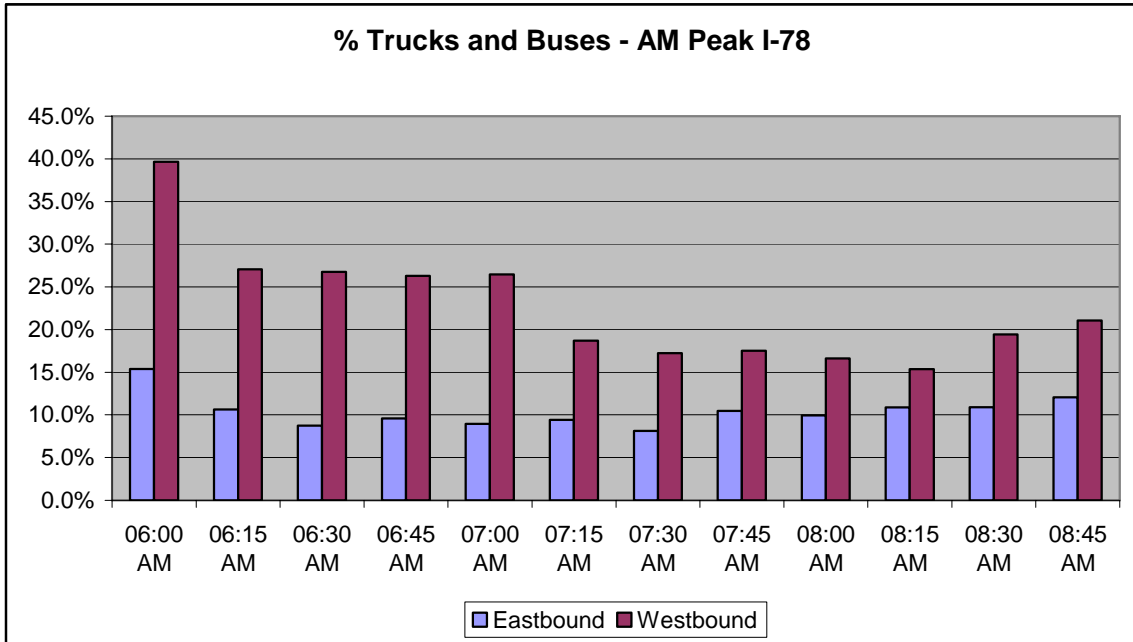
Assessment of travel markets clearly indicated the need for high quality bus service originating in Pennsylvania, and serving the areas of Central Hunterdon County and along US Route 22 from Clinton to Branchburg and Bridgewater. The effectiveness of providing such service was further confirmed by travel model runs that showed a significant number of travelers – about 615 riders per day - would use the service.

It is recommended that express bus service be implemented that would originate in Northampton County, PA, or at an Alpha or Bloomsbury park-and-ride, and travel eastward along I-78 to US Route 22 at Clinton Township, then follow US Route 22 to Branchburg and Bridgewater in Somerset County (see Figure ES-2). The service would be designed to intercept travelers as far west as possible, before entering the congested sections of I-78 in Hunterdon and Somerset Counties, and could provide high quality service to the employment centers along US Route 22 and in Bridgewater and Branchburg Townships.

The service plan for the express bus service will need to balance the competing priorities of numerous, conveniently located stops with the need to provide speedy, efficient service. Fortunately employment and activity centers along the US Route 22 corridor are concentrated in a relatively small number of intensely occupied facilities, so service can be defined that accomplishes both objectives. At each location, enhanced bus stop amenities, transit information, and pedestrian facilities (*including sidewalks and crosswalks) should be provided, as discussed below.



**TRUCK AND BUS VOLUMES IN THE CORRIDOR
PERCENT OF TOTAL WEEKDAY PEAK PERIOD TRAFFIC**



ES.2.3 Express Bus Service in the NJ Route 31 Corridor

There is a significant travel market from the north on NJ Route 31 to feed into the Raritan Valley Line and the proposed express bus service on US Route 22. This market originates in the central Warren County region – Washington Borough and Township, Mansfield Township, and the Oxford vicinity – but also emanates from northeastern Pennsylvania, including Monroe County and Stroudsburg. As a result, an additional express bus service was identified that would originate in the vicinity of Washington Borough along NJ Route 31, travel southward with stops at Hampton (if a park-and-ride is developed there), the Clinton vicinity, and then along US Route 22 from Clinton to Bridgewater as discussed above.

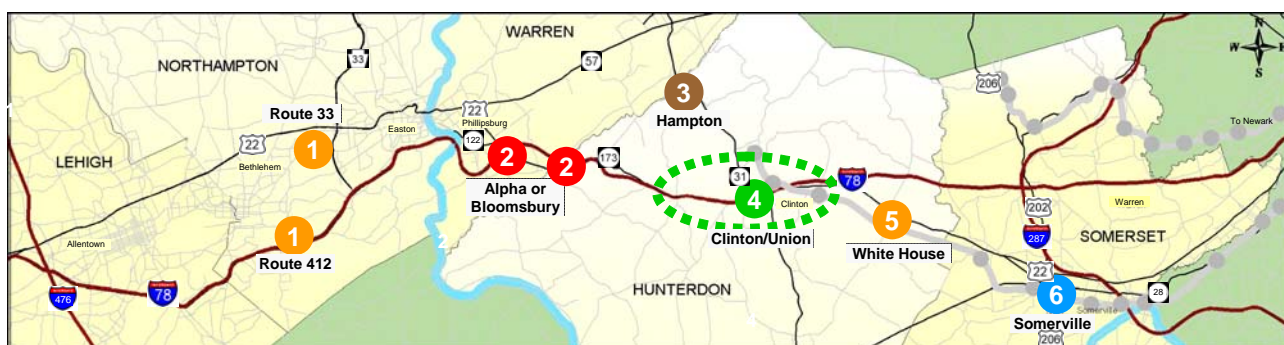
ES.2.4 Shuttle Bus Service at Key Rail Stations and Activity Centers

Connector services can be vital to improve access to and from bus and rail lines. This is particularly important at the destination end of the service to minimize walking distance from the bus / rail stop to the employment or other activity site. A series of connector shuttles are proposed to complement the proposed bus and rail service at Phillipsburg, Alpha, Clinton, Lebanon Borough, Readington Township, Branchburg, and from Raritan to Whitehouse Station.

ES.3 RECOMMENDED PARK-AND-RIDE IMPROVEMENTS

The provision of adequately sized and strategically located park-and-ride facilities will be critical to the success of transit improvements such as express bus and rail service. A series of park-and-ride facilities is recommended that will provide the necessary capacity and amenities (see Figure ES-3). Integral to this is the concept of transit transfer opportunities at these sites, which

Figure ES-3: Recommended Park-and-Ride Improvements



- | | |
|---|---|
| <p>1 Planned Park-and-Ride Expansions at PA Rt. 33 and PA Rt. 412</p> <ul style="list-style-type: none"> - PennDOT is planning to significantly expand the existing Park-and-Rides at PA Route 33 and at PA Route 412, beginning in 2008 <p>2 Transit Hub / Park-and-Ride at Alpha or Bloomsbury</p> <ul style="list-style-type: none"> - Park-and-Ride to intercept travelers as they enter I-78 in New Jersey - Easy access to and from I-78 for parkers and buses - Connections to buses (both New York and US Route 22 Corridor) - Connections to future Raritan Valley Rail Line (if extended) <p>3 Transit Hub / Park-and-Ride at Hampton</p> <ul style="list-style-type: none"> - Park-and-Ride to intercept travelers as they travel south on Route 31 from Warren County and Pennsylvania - Connections to buses on NJ Route 31 - Connections to future Raritan Valley Line (if extended) | <p>4 Possible Central Hunterdon Transit Access Facilities</p> <ul style="list-style-type: none"> - Possible transit access facilities and improvements in Clinton and/or Union Townships - Pending further study and coordination with local municipalities <p>5 Park-and-Ride Expansion & Transit Access Improvements</p> <ul style="list-style-type: none"> - White House Station (consistent with plans by Township of Readington) <p>6</p> <ul style="list-style-type: none"> - At Somerville Station (consistent with plans by Borough of Somerville) |
|---|---|



will not only allow drivers to park and change to buses, but also allow transit riders convenient transfer opportunities.

These transit hubs are proposed to be so located as to allow easy access for autos and buses from the primary highway system (I-78, US Route 22, NJ Route 31, and/or NJ Route 173). Viewed as a system, they will provide a series of intercepts that will capture traffic as it comes eastward from Pennsylvania into the core of New Jersey.

ES.3.1 Planned Park-and-Ride Expansions at PA Route 33 and PA Route 412

PennDOT operates two park-and-ride facilities in Northampton County at PA Route 33 / William Penn Highway, and at I-78 / PA Route 412. They are both heavily utilized by New Jersey-bound commuters. Planned expansions of these facilities will provide more than 1,000 new parking spaces to serve Trans-Bridge buses, Bieber buses, and car poolers. Both bus lines are structured to serve the New York City market exclusively, whereas car poolers are destined in part to suburban employment centers in New Jersey. The expanded lots will serve as a solid anchor and initial intercept for the proposed I-78 / US Route 22 express bus service.

ES.3.2 Transit Hub / Park-and-Ride at Alpha or Bloomsbury

It is recommended that a new multi-modal transit hub be developed along the I-78 corridor in New Jersey. This hub and park-and-ride would complement the intercept lots described above in Pennsylvania by providing additional access both to New Jersey-bound and New York City-bound express bus lines, and also to the Raritan Valley Line if it is extended past High Bridge along the former Central Railroad of New Jersey right of way.

There are several sites located adjacent to I-78 within the Borough of Alpha that could potentially be adapted for use as a transit hub, with direct access via a new interchange with I-78. Bus and auto movements into the lots would be quick and efficient, and impacts by park-and-ride related traffic on local streets would be negligible. Parking demand could approach 1,500 spaces if both bus and rail lines are served by the site. The site design should be arranged such that a specific section of the parking area could be accessed from local streets, but be physically separated from the main part of the site that would be accessed directly from I-78.

Alternative sites are located in Bloomsbury at approximately Milepost 7 of I-78. These sites would not have direct access to I-78 via a direct interchange, but access could be via the existing Interchange 7, potentially saving the cost of new interchange construction.

ES.3.3 Transit Hub / Park-and-Ride at Hampton

Depending on the outcome of the Phase 2 feasibility studies a train station could be located in the vicinity of Hampton, where NJ Route 31 crosses the Central Railroad of New Jersey / Raritan Valley Line right of way in the Borough of Hampton. There will be significant demand both for bus service along NJ Route 31, and for rail access in the vicinity of Hampton.



I-78 CORRIDOR TRANSIT STUDY
Section ES: Executive Summary



White House Station – Raritan Valley Line



Abandoned Tracks North of High Bridge Station – Raritan Valley Line



Therefore a transit hub and/or park-and-ride is proposed in the vicinity of the rail / highway crossing.

ES.3.4 Possible Central Hunterdon Transit Access Facilities

The Central Hunterdon County area in the vicinity of Clinton Borough, Clinton Township, and Union Township is a focal point for the region’s transportation system, which includes I-78, US Route 22, NJ Route 31, and NJ Route 173 as well as the existing Raritan Valley Line and major bus park-and-ride facilities. There is an emerging need to serve the park-and-ride and mobility needs of the residents of Central Hunterdon County. Further study and coordination with the respective municipal representatives will be needed to develop a plan that is responsive to transportation needs, while being sensitive to the area’s development and planning priorities. Therefore it is recommended that further efforts be directed toward continuing the collaborative planning begun in this study to work toward identifying potential transportation solutions within Central Hunterdon County.

ES.3.5 Park-and-Ride Expansion and Transit Access Improvements

Expansion of the rail station park-and-ride in Readington, and transit-oriented development at the Somerville train station are planned. Improvements to pedestrian access and site amenities are proposed at the Clinton Point park-and-ride in Clinton Township.

ES.4 RECOMMENDED “TRANSIT-READY” CORRIDOR AND ACCESS TREATMENTS

Transit improvement recommendations were conceived to provide high quality frequent service in the I-78 and US Route 22 corridor. Recommended companion actions include a system of park-and-ride facilities to facilitate access to the transit system, and “transit-ready” corridor treatments that would ease the movement of buses through congested locations and provide bus stop and pedestrian access improvements (see Figure ES-4).

Figure ES-4: Recommended Transit-Ready Corridor and Transit Access Improvements



ES.4.1 “Transit-Ready” Corridor Treatments

Transit-ready corridor treatments consist of a series of highway improvements specifically targeted at moving buses more expeditiously and efficiently through the corridor. By minimizing the interference of traffic and signals with bus movement, overall bus speeds are increased and, just as important, passengers’ perceptions of travel efficiency are enhanced. It is recommended that this category of improvements be installed on US Route 22, from Interchange 18 on I-78 in Clinton to the interchange with US Route 202/206 in Bridgewater. This highway segment will carry the I-78 / US Route 22 and NJ Route 31 express bus services described above. Implementation along US Route 22 in Phillipsburg, Pohatcong, and Greenwich is also recommended.

ES.4.2 Transit Pedestrian Access Improvements

Improvements at bus stops are recommended to accommodate bus passengers walking to and from the US Route 22 express bus lines. This work could consist of such components as new high-quality bus stops, and enhancements to existing stops, to provide shelters, information, signing, lighting, seating and other amenities; pedestrian access improvements, including sidewalks, crosswalks, lighting, etc.; assistance to municipalities to implement zoning and site plan ordinance revisions to require appropriate design elements in conjunction with site development; and assistance to property owners to provide pedestrian and bus stop amenities appropriate to their site.

ES.5 RECOMMENDED HIGHWAY IMPROVEMENTS

The objective of this study was to identify and develop a set of improvements to the transit system that would improve mobility and decrease congestion in the I-78 corridor. Major highway improvements such as general widenings or managed use lanes (HOV, HOT, TOT) were outside the scope of the project. Certain highway improvements were identified that were smaller in scale and that could, if implemented, either relieve critical bottlenecks or improve corridor flow to facilitate transit service. In addition, specific high-quality access facilities are proposed for major transit facilities (see Figure ES-5).

ES.5.1 Provide Direct Access to Transit Hubs

Transit hubs / park-and-rides have been recommended at three locations: in Alpha adjacent to I-78; in Bloomsbury on NJ Route 173 as an alternative to the Alpha site; and in Hampton on NJ Route 31. Direct access to / from the state highway system is proposed for each, via an interchange with I-78 in Alpha, and via new intersections and signals at Bloomsbury and Hampton.

ES.5.2 Leverage Proposed Improvements to Complement Transit

Several highway improvements have been proposed in the I-78 corridor that complement the proposed transit services if implemented. These include High Speed E-Z Pass at I-78 / Delaware River Bridge, by Delaware River Joint Toll Bridge Commission (DRJTBC); and a Welcome Center on I-78 eastbound between the Delaware River and US Route 22 (by DRJTBC).



Figure ES-5: Recommended Highway Improvements



➤ **Highway Improvement Objectives:**

- Improve corridor flow to facilitate transit service
- Provide high-quality access to major transit facilities

- 1 Provide Direct Access to Transit Hubs:**
 - From I-78 to Alpha or Bloomsbury Transit Hub
 - From NJ Route 31 to Hampton Transit Hub
- 2 Leverage Proposed Improvements to Complement Transit:**
 - High-Speed E-Z PASS at I-78 / Delaware River Bridge
 - Proposed New Jersey Welcome Center at Alpha/Bloomsbury Transit Hub
- 3 Additional Improvements to Resolve Bottlenecks:**
 - Truck Climbing Lane (Eastbound at Milepost 19)
 - Traffic Signal Coordination on US Route 22
 - US Route 22 and US Route 202/206 Corridor Improvements

ES.5.3 Additional Improvements to Resolve Bottlenecks

Highway improvement projects are planned to improve flow on US Route 22 and on US Route 202/206 in the Bridgewater / Somerville area. In addition it is suggested that a truck climbing lane be constructed on I-78 eastbound at approximately milepost 19 (east of US Route 22 in Clinton).

ES.6 RECOMMENDED LAND USE AND TRAVEL DEMAND MANAGEMENT ACTIONS

In addition to the provision of direct transportation services, it is also recommended that support and guidance for smart growth be provided, to affect the pattern of land use development in the corridor; and that increased support be given to travel demand management activities that could reduce the amount of single-occupant commutation. TMA's will be instrumental in supporting commuters' access to and from the proposed express bus services on I-78 and US Route 22, by providing shuttle buses and other transit services to link employers and residential areas to bus stops. It is recommended that the ongoing activities of these TMA's be continued and expanded to promote additional flex-time, rideshare matching, and employer-based travel demand management activities.

ES.7 CONCLUSIONS

There are significant mobility needs in the I-78 corridor that can be addressed through a comprehensive set of actions ranging from new transportation services and improvements to programs and activities that could affect the nature of travel in the corridor. Specific observations concerning the I-78 corridor's travel conditions and responses include:



1. Congestion on I-78 and US Route 22 is extensive and frequent, and affects a lengthy stretch of the corridor, typically from milepost 13 in Union Township, Hunterdon County, to milepost 30 in Bedminster, Somerset County.
2. Congestion is expected to worsen over the coming years without intervention, resulting in more severe over-capacity conditions as well as longer peak periods. The primary highway system (I-78 and US Route 22) will be most affected, but local streets will be affected as well, as traffic diverts from the congested primary system. The quality of life in the Corridor will be adversely affected in general.
3. New York-bound travel is served by both private express bus service and the existing passenger rail lines (Raritan Valley Line and Gladstone Branch). As a result the on-highway share of traffic attributable to a New York destination is relatively small. Nonetheless the amount of traffic from the Study Area to New York will increase, in response to both regional growth and the effects of the Access to the Region's Core (ARC) project. Improvements to the suburban rail system will be important to keep pace with growth.
4. Travel to the urban core of New Jersey (Newark, Hudson County, etc.) relies more heavily on the I-78 highway as well as passenger rail. This component comprises a relatively small and dispersed share of the I-78 market, however, and new transit services in the I-78 Study Area are unlikely to effectively serve it. Instead, improvements to the passenger rail system are the best way to accommodate this market.
5. Expansion of the passenger rail system could be very effective in attracting new, long-distance ridership. However by its very fixed-route nature, passenger rail can only serve certain high-intensity markets. NJ TRANSIT is now beginning a complementary Phase 2 effort: The Central New Jersey / Raritan Valley Transit Study. That study will examine a wide range of passenger rail and other transit alternatives for Central New Jersey.
6. Of the remaining trips with suburban New Jersey destinations, there is a distinct and large travel market that generally follows I-78 and US Route 22 from Pennsylvania and Warren and Hunterdon Counties, with destinations in Central Hunterdon and along US Route 22 in Readington, Branchburg and Bridgewater. This market is essentially unserved by existing transit service – bus or rail – but is large enough that new transit service is warranted.
7. A new system of express bus lines has been formulated and recommended that would link suburban-to-suburban residential origins and employment destinations with high quality, frequent service. Testing with travel models indicates that this service would attract sufficient riders to support frequent, convenient service.
8. Provision of access to and from the proposed express bus and passenger rail systems is of paramount importance to the success of the service. This must take the form of park-and-rides at the origin end, and strategically located stops and shuttles at the destination end.
9. A set of large, high quality, conveniently located, multi-modal transit hub / park-and-ride facilities is proposed that will intercept travelers as they enter New Jersey from the west, allowing them to easily transfer to bus, rail, or car-pool. These facilities are envisioned to have direct access to the primary highway system so that bus and auto access is simplified and efficient.



10. Supporting services such as shuttles, van pools and car pools, accessible, amenity-equipped bus stops, and transit-ready corridor improvements are designed to ease the flow of buses on the highway and speed the transit trip, and to facilitate distribution of trips to employment sites and other key attractors.
11. Long term goals such as land use initiatives (transit villages and transit-oriented development) are endorsed.
12. TMAs have a vital role to continue to promote shared rides, employer-supported flex time, and other programs. TMAs will also be instrumental in designing and maintaining employer-based bus stop locations along US Route 22 that will permit easy access to and from bus stops to employers' front doors.



